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09/810,650	03/15/2001	Fumiyoshi Urano	910094RI	8670
7590	04/21/2005			
James E Armstrong IV Armstrong Westerman Hattori McLeland & Naughton 1725 K Street NW Suite 1000 Washington, DC 20006			EXAMINER STOCKTON, LAURA	
			ART UNIT	PAPER NUMBER
			1626	

DATE MAILED: 04/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/810,650

Applicant(s)

URANO ET AL.

Examiner

Laura L. Stockton, Ph.D.

Art Unit

1626

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 2 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 14 December 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 7-14 and 28-31 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 7 is/are allowed.
- 6) ☒ Claim(s) 8-14 and 28-31 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |                                                                                                                        |                                                                                         |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                                                       | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____                                                |

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#### DETAILED ACTION

Claims 7-14 and 28-31 are pending in the application.

#### *Reissue Application*

Rejections made in the previous Office Action that do not appear below have been overcome. Therefore, arguments pertaining to these rejections will not be addressed.

#### *Correction*

Claims 12-14 and 28-31 are rejected under 35 U.S.C. 251 as being broadened in a reissue application filed outside the two year statutory period.

Diazodisulfone compounds were in the original patented claims (U.S. Patent 5,216,135, patented June 1, 1993). Claims 12-14 and newly added claims 28-31 are directed to a reduced light exposure energy

photosensitive resist material comprising a diazodisulfone and a polymer. Therefore, the subject matter in claims 12-14 and 28-31 is broader in scope than the original claims.

A claim is broader in scope than the original claims if it contains within its scope any conceivable product or process which would not have infringed the original patent. A claim is broadened if it is broader in any one respect even though it may be narrower in other respects. Therefore, claims 12-14 and 28-31 should be cancelled.

### ***Response to Amendment***

The Declaration under 37 CFR 1.132 filed December 14, 2004 is insufficient to overcome the rejection of claims 12-14 and 28-31 based upon 35 USC §§102(e) and 103 as set forth in the last Office action because:

(1) the Declaration is directed to subject matter that is broader in scope than the original claims, as discussed above, and which claims and subject matter should be cancelled from the instant application;

(2) the Declaration is an opinion Declaration;

(3) the open language "comprising" is used in claims 12-14 and 28-31 and therefore, other ingredients can be present in the resist material; and

(4) a Declaration under 37 CFR 1.132 cannot be used to overcome an anticipatory rejection.

### ***Claim Objections***

Claims 10 and 11 are objected to for being substantial duplicates of claims 8 and 9, respectively. When two claims in an application are duplicates, or else are so close in content that they both cover the same thing, despite a slight difference in wording, it

is proper after allowing one claim to reject the other as being a substantial duplicate of the allowed claim. M.P.E.P. 706.03(k).

### ***Response to Arguments***

Applicants' arguments filed December 14, 2004 concerning the objection of claims 10 and 11 for being substantial duplicates of claims 8 and 9, respectively, have been considered. Applicants argue that exact word for word support is not required by 35 USC 112 and since it is admitted in the Office Action that claims 8 and 10 are essentially duplicates, Applicants assert both claims 8 and 10 are supported in the instant specification.

In response, claim 10 is a duplicate of claim 8 because both claims define a species, bis(cyclohexylsulfonyl)diazomethane. However, unlike the language in claim 8, the language in claim 10 is

supported by the originally filed specification (column 2, lines 47 and 52) of application no. 07/962,089 (now U.S. Pat. 5,216,135). No persuasive support could be found for the language "cyclic alkyl group in which the alkyl group is hexyl" found in claim 8. Additionally, Applicants requested to defer canceling duplicate claims pending the allowance of all claims 8-11.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 12-14 and 28-31 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to

one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

No persuasive support could be found in the original filed claims or the originally filed specification of 07/962,089 for the following.

a) No persuasive support is found for the language "photosensitive resist material" as claimed in claims 12-14 and 28-31. In column 2, lines 29-30 of U.S. Pat. 5,216,135, the expression "chemical amplification of the resist material with heating" is used; or in column 3, lines 12 and column 6, lines 15-16 of U.S. Pat. 5,216,135, the expression "a chemical amplified resist material" is used. In column 7, lines 14-18 of U.S. Pat. 5,216,135, it states that the compounds of formula (I), not the resist material, can be used as a photosensitive reagent.

b) No persuasive support is found for the resist material being used for a light source of 300 nm or



less, as claimed in claims 12 and 13. In column 2, lines 16-31; and column 14, lines 18-24 of U.S. Pat. 5,216,135, it states that the diazodisulfone compound of formula (I) has high transmittance for light of 300nm or less.

c) No persuasive support is found for "the surface" having a positive tone pattern as claimed in claim 12. See column 2, lines 9-12; column 7, lines 6-7; and column 13, lines 65-68 of U.S. Pat. 5,216,135.

d) No persuasive support is found for just "exposure energy" as claimed in claims 12 and 14 but there is support for having either "heat treated" as found in column 6, lines 36 and 64; or "light exposure energy" as found in column 7, lines 8-13 of U.S. Pat. 5,216,135.

e) No persuasive support is found for "an effective amount" as claimed in claims 12 and 14.

f) No persuasive support is found for the language "sufficient for the polymer in the exposed portion" as

claimed in claims 12 and 14. In column 6, lines 20-21 of U.S. Pat. 5,216,135, it states that "the compound of formula (I) is present in the exposed portion".

g) No persuasive support is found for a "resin" as claimed in claims 28-31.

h) No persuasive support is found for the amount of 0.3g of the diazodisulfone compound and 6.0g of the resin as stated in instant claims 30 and 31. A single embodiment is seldom, if ever, sufficient to support a generic claim. Therefore, the claims lack written description as such.

Claims 8 and 9 are rejected under 35 U.S.C. 112, first paragraph, the description requirements therein.

The introduction of claim changes which involve narrowing the claims by introducing elements or limitations which are not supported by the as-filed

disclosure is a violation of the written disclosure requirement of 35 U.S.C. 112, first paragraph.

M.P.E.P. 2163.04 and 2163.05. As stated in *Fujikawa v. Wattansasin*, 93 F.3d 1559, 39 USPQ2D 1985 (Fed. Cir. 1996), "a laundry list disclosure of every possible moiety does not constitute a written description of every species in a genus because it would not reasonably lead those skilled in the art to any particular species.

Claims 8 and 9 are rejected under 35 U.S.C. 112, first paragraph, the description therein, for reasons essentially given in the Office Action dated September 6, 2002 {Paper No. 44}, pages 2 and 3. More specifically, in claim 8, the expression "wherein R<sup>1</sup> is a cyclic alkyl group in which the alkyl group is hexyl; and R<sup>2</sup> is a cyclic alkyl group in which the alkyl group is hexyl" lacks description in the original specification and the original claims. However, there is description in the instant specification of U.S.

Pat. 5,216,135 (column 2, line 52) for  
bis(cyclohexylsulfonyl)diazomethane.

Specifically, in claim 9, the expression " where  $R^1$   
is a branched alkyl group in which the alkyl group is  
butyl; and  $R^2$  is a branched alkyl group in which the  
alkyl group is butyl" lacks description in the original  
specification and the original claims. However, there  
is description in the instant specification of U.S.  
Pat. 5,216,135 (column 2, lines 55 and 56) for  
bis(tert-butylsulfonyl)diazomethane and bis(sec-  
butylsulfonyl)-diazomethane.

### ***Response to Arguments***

Applicants' arguments filed December 14, 2004  
concerning the rejection of claims 8 and 9 under 35 USC  
§ 112, first paragraph have been fully considered.

Applicants argue that the statement "a laundry list  
disclosure of every possible moiety is not a written  
description for every species in a genus" is out of

context here because it is apparent to the skilled chemist that a "laundry list disclosure of every possible moiety" is not in fact disclosed in the Applicants' priority document.

In response, the language found in claims 8 and 9 is found in Applicants' Japanese priority document. Such language is not found in U.S. Pat. 5,216,135. Since Applicants do not have description for the language in claims 8 and 9 in the instant specification, the issue as to description in the Japanese priority document has no bearing on the 35 U.S.C. 112, first paragraph, rejection herein.

Additionally, note the decision by the Board of Appeals and Interferences on September 24, 1999 {Paper No. 27} affirming the Examiner in Reexam 90/004812 (which has been merged with the instant application) and the Judgment on February 1, 2001 by the United States Court of Appeals for the Federal Circuit {Paper No. 32} - *In re Wako Pure Chemical Industries*, 00-139.

Further, Claim 3 in the Reexam listed the specific specie bis(cyclohexylsulfonyl)diazomethane, bis(tert-butylsulfonyl)diazomethane and bis(sec-butylsulfonyl)diazo-methane (column 14, lines 50, 53 and 54), which correspond to claimed subject matter of instant claims 8-11.

The Board decided that claims 2 and 3 lacked adequate written descriptive support from the Japanese priority document. The Board stated, "there is no more guidance in the Japanese application to select a slightly smaller subgenus than there is to select any other subgenus ." (page 10, second full paragraph of the Decision). It is noted that the subject matter of claims 2 and 3 was not appealed to the CAFC, at Applicants' choosing, and for the subject matter appealed, claims 1 and 4-6, the position of the Examiner was affirmed. Further, the Examiner cannot ignore a CAFC Judgment (Reexam 90/004812) or a Decision by the Board of Appeals and Interferences (Reexam

90/004812) that relates to any of the claimed subject matter.

Also detailed in the decision by the Board of Appeals and Interferences on September 24, 1999 {Paper No. 27} in the merged Reexam 90/004812 affirming the Examiner, the instant claimed invention lacks adequate written descriptive support in the Japanese priority document. Therefore, claims 8 and 9 lack written description as such.

Claims 12-14 and 28-31 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 12, 14, 28 and 29, it would appear that "difficulty soluble" should be changed to "difficultly

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soluble". In claims 28-31, "p-hydroxystyrene" is misspelled.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

(f) he did not himself invent the subject matter sought to be patented.

(g)(1) during the course of an interference conducted under section 135 or section 291, another inventor involved therein establishes, to the extent permitted in section 104, that before such person's invention thereof the invention was made by such other inventor and not abandoned, suppressed, or concealed, or (2) before such person's invention thereof, the invention was made in this country by another inventor who had not abandoned, suppressed, or concealed it. In determining priority of invention under this subsection, there shall be considered not only the respective dates of conception and reduction to practice of the invention, but also the reasonable diligence of one who was first to conceive and last to reduce to practice, from a time prior to conception by the other.



Claims 8-14 are rejected under 35 U.S.C. 102(e) as being anticipated by Pawlowski et al. {U.S. Pat. 5,338,641}.

Pawlowski et al. disclose compounds which are embraced by the instant claimed invention and therefore, anticipate the instant claimed invention. See the following table.

Applicants' Compounds	Pawlowski et al.'s Compounds	Instant Claims Anticipated
$\begin{array}{c} \text{R}^1\text{SO}_2\text{CSO}_2\text{R}^2 \\ \parallel \\ \text{N}_2 \end{array}$	$\begin{array}{c} \text{R}-\text{SO}_2-\text{C}-\text{SO}_2-\text{R} \\ \parallel \\ \text{N}_2 \end{array}$	
<p>R<sup>1</sup> and R<sup>2</sup> are each cyclohexyl</p>	<p>Bis(cyclohexylsulfonyl)diazomethane (column 4, line 46)</p> <p>Each R variable represents a cyclohexyl</p>	<p>Claims 8 and 10-14</p>

R <sup>1</sup> and R <sup>2</sup> are each branched butyl (e.g., iso-butyl)	Bis (2-methyl-propyl-sulfonyl)-diazomethane (column 4, line 33)  Each R variable represents a branched alkyl (e.g., 2-methyl-propyl)	Claims 9 and 11-14
R <sup>1</sup> and R <sup>2</sup> are each branched butyl (e.g., sec-butyl)	Bis(1-methyl-propyl-sulfonyl)-diazomethane (column 4, line 32)  Each R variable represents a branched alkyl (e.g., 1-methyl-propyl)	Claims 9 and 11-14

### ***Response to Arguments***

Applicants' arguments filed December 14, 2004 concerning the rejection of the claims under 35 USC § 102(e) have been fully considered. Applicants argue that logically having substantial duplicate claims with

one defined in the specification and the language of the other found in the priority document, the claims cannot be anticipated under 102(e) because there is admitted continuous support for the claims dating back to the priority document.

In response, firstly, the Board of Appeals and Interferences on September 24, 1999 {Paper No. 27} in Reexam 90/004812 (which has been merged with the instant application) and in the Judgment on February 1, 2001 by the United States Court of Appeals for the Federal Circuit {Paper No. 32} both ruled that Applicants' priority document lacked written description under 35 USC 112, first paragraph. Note, the subject matter of instant claims 8-11 can be found in claims 2 and 3 of said Re-exam. As stated above, the Examiner cannot ignore a CAFC Judgment (Reexam 90/004812) or a Decision by the Board of Appeals and Interferences (Reexam 90/004812) that relates to any of the claimed subject matter.

Secondly, the disclosure of the word "cyclic alkyl" in Applicants' priority document along with various other substituents such a haloalkyl, substituted phenyl, alkoxy, aralkyl, alkenyl, etc., would not lead one skilled in the art to the instant claimed specie.

Applicants argue that the reduced light exposure resist material is not disclosed in Pawlowski et al. Applicants argue that the Declaration filed December 14, 2004 under 1.132 clarifies the empirical differences between the claimed resist material and that of Pawlowski et al. Applicants also argue that Pawlowski et al.'s materials require additional compounds.

In response, instant independent claim 12 is a resist material which has a diazodisulfone compound and a polymer. In Applicants' specification (U.S. Pat. 5,216,135), a polymer used in the instant invention is a styrene containing polymer (column 3, lines 15-20). Pawlowski et al. teach that a material which has a

diazodisulfone compound and a polymeric substance such as styrene containing polymers (column 8, lines 32-35 and 63-68; and column 9, lines 1-16) and is a highly sensitive photoresist for high energy UV2 radiation, 248nm (column 6, lines 13-21). Further, the open language "comprising" is used in independent claim 12 and therefore, other ingredients can be present in the resist material. The rejection is deemed proper and is maintained.

Claims 12-14 are rejected under 35 U.S.C. 102(f) or (g) as being anticipated by Pawlowski et al. {U.S. Pat. 5,338,641}.

Pawlowski et al. disclose a radiation-sensitive mixture which has a diazodisulfone compound and a binder (ie., a polymeric substance). See the claims in Pawlowski et al.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 9 and 11-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pawlowski et al. {U.S. Pat. 5,338,641}.

***Determination of the scope and content of the prior art (MPEP §2141.01)***

Applicants claim diazodisulfones. Pawlowski et al. teach diazodisulfones {e.g.,  $\alpha,\alpha$ -bis(sulfonyl)-diazomethanes} which are either structurally the same as (see above 102 rejection) or structurally similar to the instant claimed compounds. See in the reference, for example, wherein R represents butyl (including positional isomers - e.g., tert-butyl) or cyclohexyl {column 3, lines 8-15, 40-49, 66-68; column 4, lines 1-

2; and especially the compounds in column 4, lines 32-34}.

*Ascertainment of the difference between the prior art and the claims*  
*(MPEP §2141.02)*

The difference between some of the compounds of the prior art and the compounds instantly claimed is that the instant claimed compounds are generically described in Pawlowski et al.

*Finding of prima facie obviousness--rational and motivation (MPEP §2142-2413)*

The indiscriminate selection of "some" among "many" is *prima facie* obvious, In re Lemin, 141 USPQ 814 (1964). The motivation to make the claimed compounds derives from the expectation that structurally similar compounds would possess similar activity (e.g., forms a strong acid on exposure to actinic radiation).

One skilled in the art would thus be motivated to prepare compounds embraced by the reference genus to

arrive at the instant claimed compounds with the expectation of obtaining additional beneficial compounds which would be useful in forming a strong acid on exposure to actinic radiation. The instant claimed invention would have been suggested to one skilled in the art and therefore, the instant claimed invention would have been obvious to one skilled in the art.

### ***Response to Arguments***

Applicants' arguments filed December 14, 2004 concerning the rejection of the claims under 35 USC § 103 have been fully considered. Applicants argue that claims 9 and 11 are not obvious as explained on pages 6-9 of the response filed on February 4, 2004. Applicants also argue that claims 12-14 are not obvious based on the working examples in Pawlowski et al., and the use of reduced light exposure energy. Applicants argue that the reaction mechanism of the instant



claimed invention is different than that of Pawlowski et al.

In response, claims 9 and 11 are obvious for reasons of record in, for example, the Office Action dated September 14, 2004 {Paper No. 62}, pages 13-19. Further, it is well established that consideration of a reference is not limited to the preferred embodiments or working examples, but extends to the entire disclosure for what it fairly teaches, when viewed in light of the admitted knowledge in the art, to person of ordinary skill in the art. In re Boe, 148 USPQ 507, 510 (CCPA 1966).

Additionally, instant claim 12 is directed to a resist material, not a process of making. In the end, the instant claimed resist material contains a polymer which is alkali-soluble and Pawlowski et al. teach the use of an alkali-soluble polymer in their material.

The instant claimed resist material has a diazodisulfone compound and a polymer. In Applicants'

specification (U.S. Pat. 5,216,135), a polymer used in the instant invention is a styrene containing polymer (column 3, lines 15-20). Pawlowski et al. teach that a material which has a diazodisulfone compound and a polymeric substance such as styrene containing polymers (column 8, lines 32-35 and 63-68; and column 9, lines 1-16) and is a highly sensitive photoresist for high energy UV2 radiation, 248nm (column 6, lines 13-21). Applicants argue that Pawlowski et al. require an additional compound, which is an essential ingredient to Pawlowski's invention. In response, the open language "comprising" is used in independent claim 12 and therefore, other ingredients can be present in the instant claimed resist material. For all the reasons given above, the rejection is maintained.

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***Allowable Subject Matter***

Claim 7 is free of the art of record for reasons already of record in Paper No. 39, pages 4-5 (dated February 22, 2002). Therefore, claim 7 is allowed.

In order to ensure full consideration of any amendments, affidavits or declarations, or other documents as evidence of patentability, such documents **must** be submitted in response to this Office action. Submissions after the next Office action, which is intended to be a final action, will be governed by the requirements of 37 CFR 1.116, which will be strictly enforced.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura L. Stockton whose telephone number is (571) 272-0710. The examiner can normally be reached on Monday-Friday from 6:15 am to 2:45 pm. If the

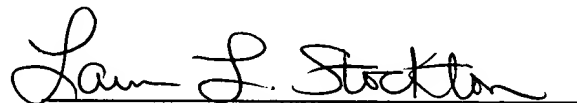
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examiner is out of the Office, the examiner's supervisor, Joseph McKane, can be reached on (571) 272-0699.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

The Official fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.



Laura L. Stockton, Ph.D.  
Patent Examiner  
Art Unit 1626, Group 1620  
Technology Center 1600

April 20, 2005